PART IV. THE CHEMICAL NATURE OF SOLID PETROLEUM HYDROCARBONS

Chernozhukov, N.I., Kazakova, L.P. Methods for the Separation of Solid Hydrocarbons From Petroleum Oil Fractions and Their Characteristics 203
The article describes a new method for the extraction and separation of various groups of solid hydrocarbons from petroleum oil fractions. A Romashkino crude concentrate was used for the extraction of solid paraffinic, naphthenic, aromatic, and naphthenic-aromatic hydrocarbons. The paraffins constituted only a minor part. Solid aromatics, mainly those which do not form urea complexes, contain a considerable amount of solid sulfur compounds. There are 7 figures, 2 tables, and 1 Soviet reference.

Topchiyev, A.V., Rozenberg, L.M., Terent'yeva, Ye.M., Nechitaylo, N.A. Separation of Petroleum Paraffins into Normal and Isomer Hydrocarbons 208
The temperature ranges for the decomposition of complexes of individual normal paraffins C_{16} to C_{32} were determined by means of the differential-thermal analysis. They can be used for the identification of normal paraffins. It was shown that urea is not a selective

reagent for normal paraffins. Only slight branched paraffins easily form urea complexes. Most of the isoparaffins which were separated from the Groznyy paraffin as urea complexes have slightly branched structures. Hydrocarbons which do not react with urea resemble the cycloparaffins. There are 6 figures, 2 tables, and 39 references of which 8 are Soviet, 24 English and 7 German.

Voznesenskaya, Ye.V., Zherdeva, L.G. Study of Solid Hydrocarbons From Sulfur-Containing Eastern Crudes 218

It was determined that highly refined solid hydrocarbons obtained from a deasphalted Tuymazy crude concentrate (b.p. > 350°) belong to the methane series and are mainly normal paraffins (C_{23} to C_{36}). Solid hydrocarbons with m.p. > 65° contain about 35 percent isomeric methane hydrocarbons. There are 12 figures, 6 tables, and 19 references of which 9 are Soviet and 10 English.

Gol'dberg, D.O. Solid Petroleum Hydrocarbons, Their Composition and Methods of Separation 228

The article is a general review of research done in the field of solid petroleum hydrocarbons separated from Soviet crudes. The author mentions the fact that there is no adequate method for the analytical oxidation of high molecular weight hydrocarbons with long paraffin chains. It was shown that normal paraffins and ceresins are very susceptible to depressants e.g. dialkylnaphthaline, not like solid naphthenes which are very stable in solutions with petroleum products, and are not affected by most depressants. This specificity of action of additives can serve for the identification of solid hydrocarbons. The article gives 2 tables and 1 figure. There are no references.

Melikadze, L.D. Crystalline Components of High Molecular Weight Petroleum Fractions 236

This is a study of the crystalline substances obtained from several types of Soviet crudes. Two main groups were separated: luminescent

products which were determined to be hydrocarbons (high paraffin content - and low resin content) and nonluminescent reddish-blue products (nitrogen containing compounds). Evidently, the high molecular weight compounds contain aromatic rings and other structures of low thermal stability, which fact can be regarded as confirmation of the low-temperature formation of petroleum. There are 2 tables and 19 references of which 14 are Soviet and 5 English.

PART V. RESINOUS-ASPHALTIC SUBSTANCES. COMPOSITION, PROPERTIES, AND RESEARCH METHODS.

Sergiyenko, S.R., Davydov, B.E. Physical Properties of Petroleum Resinous Substances 245

Resinous substances from the Romashkino crude and from the Gyurgyany crude were taken for this study. The increase of the amount of acid and neutral saponifiable substances is directly proportional to the increase of the amount of hetero-atoms they contain (O,S,N). All resinous substances are characterized by considerable surface activity. They can be separated into fractions of increasing surface activity

with the aid of a series of solvents with increasing dielectric constants. The differentiation of resinous fractions can be improved by the inclusion of cyclohexane as a solvent. The molecular, surface, and polarization characteristics are used for the differentiation of fractions which show similar results in chemical analysis. There are 2 tables, 9 figures, and 7 references of which 5 are Soviet, and 2 English.

Ben'kovskiy, V.G. Certain New Methods for the Separation of Resinous Substances 258

The author proposes the following types of methods for the separation of resinous substances: methods of collodial chemistry and electrochemistry (electrophoresis, electrodialysis, high-voltage electrolysis, thermodiffusion), and the method of molecular compounds (reaction of organic compounds with salts of various elements). There are 2 figures, 1 table, and 14 references of which 5 are Soviet, 8 German, and 1 English.

Velizar'yeva, N.I., Zherdeva, L.G. Physicochemical Study of Asphaltic-Resinous Substances From Eastern Crudes 266

Propane treatment yields products with a high hydrogen content and high molecular weight. Phenol treatment gives products of lower molecular weight, high density, and high S, N and O content. Resins from Tuymazy and Emba crudes are composed of polycylic compounds containing S, N, and O, with average molecules of 4 - 6 cycles. The average molecule contains not only aromatic cycles, but also considerable amounts of naphthenic (sometimes up to 50%) and paraffinic (40 - 50%) cycles, basically short. There are 7 tables, 3 figures, and 13 references of which 12 are Soviet and 1 German.

Bogdanov, N.F. Plan of a Standard Method for the Study of Mazut 280

The proposed method is not in its definitive form. Changes and additions are expected after the completion of work on problems which still remain unsolved, both in apparatus and methodology. The proposed method consists of two stages. The first stage which is identical for all mazuts determines hydrocarbon composition and physicochemical properties. The second stage is concerned with the separation of technical products for particular applications. These products are characterized by technical, physical, and chemical properties which should fulfill some requirements, therefore this stage is not uniform for all mazuts but is dictated by specific needs. There are 2 tables, 1 figure, and 4 references of which 2 are Soviet and 2 English.

Bogdanov, N.F., Martynenko, A.G., Artem'yeva, O.A. Methods for Study of the Composition of Heavy Petroleum Products by Fractionation with Liquid Propane and an Adsorbent 291

The high-boiling residual petroleum products are investigated by means of the fractionation method developed by the GrozNII. This method is based on the separating properties of liquid propane and of liquid propane plus an adsorbent. The use of liquid propane permits finer separation than achieved by other methods. The molecular weight of the cuts increases with fractionation, and their chemical composition shows increase of aromatization. Composite fractionation with an adsorbent, gives narrower cuts differing in chemical composition. The advantage of these methods is the maintenance of the chemical composition of all components throughout the process. There are 13 tables, 2 figures, and 2 references of which 1 is Soviet, and 1 English.

Sereda, Ya.I. A Method for Analysis of the Chemical Composition of Organic Components in Acid Asphalts 308

The Laboratory for Petroleum Refining at the Geological Institute of Mineral Resources, Lvov Branch of UkrSSR, developed a new method for analysis of the chemical group composition of acid asphalts obtained from the refining of oil and wax. This method serves for the determination of the composition of all types of acid asphalts, and can be

conveniently used in plant laboratories. It introduces new elements into asphalt analysis: more complete quantitative analysis of organic components, especially of paraffinic acid asphalts (for the first time), determination of carboxylic acids (naphthenic and asphaltous), determination of "oxonium" compounds of resins and asphaltenes as independent from the various groups of asphaltene-sulfonic acids, and the discovery of the hitherto unknown new group of asphaltene-sulfonic acids which are not soluble in acetone. There are 3 tables and 8 references of which 4 are Soviet, 1 German, and 3 English.

PART VI. PETROLEUM SULFUR COMPOUNDS AND METHODS FOR THEIR INVESTIGATION

Obolentsev, R.D., Ayvozov, V.B., Ratovskaya, A.A. Physicochemical Method for Group Analysis of Sulfur Compounds in Petroleum Distillates 323

The article discusses existing methods and describes a new method developed for the study of sulfur compounds in ligroin-kerosene-solar petroleum fractions. The method is based on the direct determination of elementary sulfur, and sulfur in mercaptans, sulfides and disulfides, by amperometric, potentiometric, and polarographic analyses. The kerosene fraction from Tuymazy crudes was used in the analysis. There are 4 figures, 7 tables, and 15 references of which 8 are Soviet, and 7 English.

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Luk'yanitsa, V.G., Gal'pern, G.D. Methods for Study of Group Composition of Sulfur Compounds in Petroleum Products 333

The article reviews the existing methods for the determination of sulfur compounds in petroleum products, and enumerates foreign as well as Soviet methods for the analysis of separates classes (free sulfur, hydrogen sulfide, mercaptans, disulfides, sulfides, thiophenes) and for group analysis. There are 3 tables, 1 figure, and 73 references of which 17 are Soviet, 45 English, 5 German, 2 Czech, and 4 French.

Gusinskaya, S.L. The Nature of Sulfur Compounds in Crudes From Southern Uzbekistan 343

It was determined that Southern Uzbekistan crudes have a high sulfur content (3 - 6 percent) and high content of nitrogen compounds (up to 1 percent). Thiophane homologues were detected (methyl-amyl-heptyl) in these crudes. Uch-Kzyl crudes include also thiazoles (methylthiazole). Gasoline and kerosene from these crudes show 2 - 4 percent sulfur. There are 5 tables and 21 references of which are 15 Soviet, 3 English and 3 German.

Chudakova, I.K., Volynskiy, N.P. Determination of Sulfur Content in Heavy Petroleum Products by Double Combustion 352

This is a new method proposed for the double combustion for the determination of sulfur in all types of petroleum products, with the exception of gasoline and low-sulfur kerosene, and in individual organic compounds containing C, H, O, N, and S. This method is more exact than the bomb and VTI methods. There are 6 tables, 5 figures, and 5 references of which are 4 Soviet and 1 English.

Gurevich, I.L. On the Problem of Petroleum Desulfurization 364

The author describes the continuous desulfurization of crudes by means of the MNI adsorption method. Variation of the adsorbent - crude ratio controls the sulfur content of the various fractions. The article gives 3 figures. There are no references.

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Card 22/22

SOV/81-59-16-58531

Translation from: Referativnyy zhurnal, Khimiya, 1959, Nr 16, p 414 (USSR)

AUTHORS: Kreyn, S.E., Borovaya, M.S.

TITLE: The Effect of the Chemical Composition of Petroleum Lubrication Oils on Their Properties

PERIODICAL: V sb.: Sostav i svoystva vysokomolekul. chasti nefti. Moscow, AN SSSR, 1958, pp 138-166

ABSTRACT: Investigation results are presented concerning the chemical composition, physical-chemical and operation properties (oxidation resistance, corrosion activity) of the following substances: distillates; oils obtained by selective and sulfuric acid purification from various types of petroleum; naphthene-paraffin fractions (NPF); aromatic hydrocarbons (AH) as well as asphaltic-resinous substances (ARS) obtained by adsorption separation of oils on silicagel. Besides that, NPF divided on activated coal into hydrocarbons which are poor ("naphthene") and which are rich ("paraffin") in hydrogen. The distillates of Baku oil differ essentially in their properties. The purification changes sharply their physical-chemical indices, but oils of medium viscosity obtained by sylfuric acid and selective purification retain their individuality. The chemical composition

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The Effect of the Chemical Composition of Petroleum Lubrication Oils on Their Properties

of the oils determines sufficiently clearly their qualitative characteristics. The composite NPF of various motor oils are very similar in their physical-chemical properties and chemical composition. The NPF of oils from Emba and sulfurous petroleum differ somewhat in their properties and composition from the NPF of Baku oils. Compared to the composite NPF in "naphthene" fractions the pour point decreases sharply, the viscosity (η) and the density (d) increase, but in "paraffin" fractions the pour point and the molecular weight increase sharply, but η , d and $n^{20}D$ decrease. AH, depending on the depth of desorption from silicagel, differ significantly in the number of aromatic rings and physical-chemical indices. The NPF have a low antioxidation stability, a high corrosivity, an inclination to varnish formation, unsatisfactory detergent properties, and good viscosity-temperature characteristics. The character of the raw material has no essential effect on the stability of NPF separated from medium- and highly-viscous oils. AH are considerably more stable than NPF, and in the oxidation in a thin layer are characterized by a lower varnish-forming ability. With an increase in the number of rings in AH the acid number of the oxidized products decreases. Low-cyclic AH in low concentrations do not practically decrease the oxidizability of NPF, but polycyclic AH are strong antioxidants for NPF. Distillates strongly corrode Pb and lead bronze.

B. Englin.

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BOROVAYA, M. S.

AUTHORS: Puchkov, M. G., and Borovaya, M. S. 65-58-4-2/12

TITLE: The Reliability of Some Laboratory Methods of Evaluating the Operational Properties of Motor and Tractor Oils (O dostovernosti nekotorykh laboratornykh metodov otsenki ekspluatatsionnykh svoystv avtotraktornykh masel)

PERIODICAL: Khimiya i Tekhnologiya Topliv i Masel, 1958, Nr 4, pp 10 - 17 (USSR)

ABSTRACT: Some comparatively new laboratory methods of evaluating the properties of tractor oils (e.g. the corrosive properties, thermal stability, tendency to form scale - and other deposits) are reviewed. The following factors have to be taken into account when evaluating the operational properties of motor oils:- (a) the wear of the engine, (b) the scale formation, (c) corrosion of the engine parts, and (d) the starting of the engine, The anti-wear properties of a motor oil do not depend on its initial anti-wear properties, but on the depths of oxidation and thermal decomposition of the oil which leads to the formation of insoluble deposits of tars, acids and asphaltenes. These conditions cannot be reproduced in a friction engine, and therefore, the evaluation of anti-wear properties of motor oils are carried out on one-cylinder test machines (ОЦМ, МТ9-2, МТ9-3),

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65-58-4-2/12

The Reliability of Some Laboratory Methods of Evaluating the Operational Properties of Motor and Tractor Oils

and on actual engines for long and short periods. The methods of Yu. A. Pinkevich and K. S. Ramayya were used for evaluating the corrosive properties of motor oils. The method was developed when lead-copper, cadmium-silver, cadmium-nickel, and other alloys were first put into wide use. This method was evaluated according to the method of Pinkevich on the bearings of the engine ЯАЗ-204. A practically linear dependence of the wear of the bearings on the corrosivity of the oils was found (Fig.1). The method developed by K. K. Papok et al (Refs. 2, 8 and 9) for determining the properties preventing scale formation were verified (Fig.2), and a modified method for determining the coefficient of lacquer formation is discussed, as well as results obtained by the method ПЗВ for differentiating oils containing additives, and the method of laboratory evaluation of lacquer formation of oils (Figs. 3, 4 and 5 and Table 2). These tests were carried out on a tractor engine Д-35. Laboratory methods of oxidizing motor oils were also verified according to VNIITneft' and NAMI (K. S. Ramayya).

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65-58-4-2/12

The Reliability of Some Laboratory Methods of Evaluating the Operational Properties of **Motor and Tractor Oils**

Table 4: a comparison of diesel oils after their oxidation according to the method NAMI and tests in the engine Д-35. Table 6: results of tests on diesel oils. There are 6 Tables, 6 Figures and 12 References - 3 English and 9 Russian.

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ASSOCIATION: VNII NP.

1. **Lubricating oils-Test results** 2. Lubricating oils-Corrosive effects 3. Lubricating oils-Test methods

SOV/65-58-8-1/14

AUTHORS: Puchkov, N. G; Borovaya, M. B., and Zelenskaya, R. G.

TITLE: Useful Properties of Lubricating Oils for Cars from Eastern Sulphur Petroleums (Ekspluatatsionnyye svoystva avtolov iz vostochnykh sernistykh neftey).

PERIODICAL: Khimiya i Tekhnologiya Topliv i Masel, 1958, Nr.8. pp. 1 - 3. (USSR).

ABSTRACT: During tests by the Novokuybyshevsk Petroleum Refinery (Novokuybyshevskiy neftepererabatyvayushchiy zavod) carried out by TsIATIM, VNIITneft', NAMI and VNII NP it was found that the properties of oils prepared according to Standard GOST 8581-57 are unsatisfactory. Detailed investigations were, therefore, carried out on the chemical composition and physico-chemical properties of these oils. From characteristics of these samples (Table 1), it can be seen that oils from sulphur petroleums differ from Baku petroleums by their low magnitudes of density and low refraction coefficients, but they have better viscosity-temperature properties, show low corrosion and a high tendency to lacquer formation. Data on the effect of the addition of various additives on the properties of lubricating oils NK NPZ was evaluated by laboratory methods (Table 2) in a Pinkevich apparatus. The smallest

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Useful Properties of Lubricating Oils for Cars from Eastern Sulphur Petroleums.

anti-corrosive action was shown by the additive Paranoks and Tsiatim-339. The additive AzNII-4 and Santolube proved unsatisfactory. The additive DF-1 Paranoks and Santolube was most effective in reducing lacquer formation. Analogous data were obtained when determining the detersive properties according to PZV (GOST 5726-53). The oil NK-NPZ could not be tested on the engine GAZ-51 because of insufficient purification. Table 3: results of tests of oils on the engine GAZ-51 (time of test = 100 hours). As these laboratory analyses proved to be insufficient, pure and used oils were divided into hydrocarbon fractions (Tables 4, 5 and 6) and tested (Refs.3, 4 and 5). A comparative evaluation of the chemical composition of these oils showed that after 150 hours of work the chemical group composition of the oils changed only to a slight extent. However, the viscosity of the aromatic fractions of the oils from Baku petroleum altered considerably. Some additional characteristics of the changes of the oils after 100 hours of work were obtained during the analysis of tars (Table 7) and during analysis of deposits on filters (Table 8). The lower degree of carbonisation

Useful Properties of Lubricating Oils for Cars from Eastern Sulphur Petroleums.

of oxidation products was less dependent on the chemical composition of the oils than on the presence of sulphur in the oil NK-NPZ. Further tests were carried out on the oxidation of five samples of oils under laboratory conditions (in the apparatus DK-2 NAMI) at 180o, 200° and 220°C during fifty hours. The viscosity at 50°C was determined every ten hours, as well as the quantity of insoluble deposits, tar and the amount of formed asphaltenes and hydroxy acids (Figs.1 - 4). Table 9: data on the content of sulphur in the oils. At high temperatures (220°C and higher) the stability of Baku and Eastern oils equalises. Oxidation products of Eastern oils are less pure and contain a larger amount of tars, asphaltenes, hydroxy acids, but no carbenes or carboids. There are 9 Tables, 4 Figures and 5 References: 4 Soviet and 1 English.

1. Lubricating oils--Test results 2. Lubricant additives--Effectiveness 3. Sulfur--Chemical effects

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PUCHKOV, N.G.; BOROVAYA, M.S.; ZELENSKAYA, R.G.; BELYANCHIKOVA, G.P.

Performance of winter motor oils from eastern sulfur-bearing crudes. Khim.i tekh.topl.i masel 4 no.2:10-18 F '59. (MIRA 12:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut po pererabotke nefti i gaza i polucheniyu iskusstvennogo topliva.
(Lubrication and lubricants--Testing)

29445
S/081/61/000/017/145/166
B117/B138

11.9000

AUTHORS: Puchkov, N. G., Borovaya, M. S., Reznikov, V. D.

TITLE: Change in chemical composition and operating properties of oils during service in the engine

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 17, 1961, 472, abstract 17M219 (Tr. 3-y Vses. konferentsii po treniyu i iznosu v mashinakh. M., AN SSSR, v. 3, 1960, 373 - 381)

TEXT: The authors tested heavy diesel lubricating oils from Baku and from Eastern sulfurous petroleums with and without addition of 3% Циатим-339 (Tsiatim-339) on engines of the types ГАЗ-51 (GAZ-51) and Д-35 (D-35). The chromatographically determined, chemical group composition is given for oils in the initial state and after 50, 100, and 200 hr service in the engine. The monocyclic hydrocarbon concentration was found to decrease, and that of the polycyclic hydrocarbons and tarry matter increased. When the D-35 engine was run on a sulfur-base diesel fuel (1 - 2% S) the oil aged much faster and insoluble substances formed to a considerably higher extent than during operation with a fuel containing 0.2% S. [Abstracter's note: Complete translation.]

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3035
S/081/62/000/005/081/112
B162/B101

11 9700

AUTHORS: Ramayya, K. S., Borovaya, M. S., Sil's, R. Kh.

TITLE: Laboratory investigation of the antioxidizing efficiency of additives to motor oils

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 5, 1962, 528, abstract 5M214 (Sb. "Prisadki k maslam i toplivam". M., Gostoptekhizdat, 1961, 269-272)

TEXT: The results are compared of three methods of oxidation of [illegible]-11 (DS-11) oil without any additive and with each of the following additives: Tsiatim-339, 3%. Tsiatim-339 alkaline, 3%. Bartiol, 3%, Bartiol alkaline, 3%. Gintset, 5 %. Oxidation methods: revised Aznii method at 200°C by absorption of O_2 to 5ml/g of oil, NAMI method (in [illegible]-2 (DK-2) device) at 200°C for 50 hrs and thermooxidizing stability [illegible] 9352-60 (GOST 9352-60) at 250°C. With the NAMI method (the criterion is the quantity of sediment in the oxidized oil) the additives Tsiatim-339, Bartiol, and Gintset were

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prooxidants, Tsiatim-339 alkaline was antioxidant, and Bartiol alkaline did not change the quantity of sediment in the oxidized oil. The evaluation of the action of the additives by the Aznii method was practically the same as by the NAMI method. With the thermooxidizing stability method, an opposite evaluation to that of the first two methods was obtained, namely: all additives were antioxidants, the presence of excess alkalinity in the Tsiatim-339 and Bartiol additives causing a reduction in the antioxidant efficiency of the additives. The opposite evaluation of the action of the additives by the last method is explained by the authors as due to the fact that with this method the oxidation of the oil takes place in a thin layer, as a result of which the oxidation products formed in the oil volatilize, while in the case of oxidation in the oil (the first two methods) these products undergo condensation and polymerization with the formation of a sediment which is insoluble in light gasoline. [Abstracter's note: Complete translation.]

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S/081/62/000/005/093/112
B160/B138

AUTHORS: Reznikov, V. D., Puchkov, N. G., Borovaya, M. S.

TITLE: Calculating the necessary concentrations of neutralizing additives for heavy diesel engine oils

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 5, 1962, 533, abstract 5M255 (Sb. "Prisadki k maslam i toplivam", M., Gostoptekhizdat, 1961, 297 - 304)

TEXT: A method has been developed for making preliminary calculations of the concentrations of neutralizing additives required for oils, based on the sulfur content of the fuel used and various design and operating parameters of the engine. A result of the work was the discovery of the nature of the dependence of wear and carbonization in a four-stroke diesel on the concentration of ВНИИНП-360 (VNIINP-360) additive in the oil. The calculated quantities of VNIINP-360 additive required for Д-38 (D-38) diesel operating on fuels with varying sulfur contents agree closely with the results obtained experimentally. It is pointed out that correct selection of oil additive concentration is particularly important when fuels with a high sulfur content are used. [Abstracter's note: Complete trans-

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B160/B138

Calculating the necessary...

lation.]

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L 20341-63 EPF(c)/EWI(m)/BDS AFFTC/APGC Pr-4 GW/WW/DJ

ACCESSION NR: AT3002006 S/2664/61/000/000/0311/0318

AUTHORS: Puchkov, N. G.; Borovaya, M. S.; Deryabin, A. A.; Belyanchikov, G. P.

TITLE: The testing of oils with additives on engines and mechanisms, and practical experience therewith. The testing of oils from sulfurous crudes with various additives.

SOURCE: Prisadki k maslam i toplivam; trudy nauchno-tekhnicheskogo soveshchaniya. Moscow, Gostoptekhizdat, 1961, 311-318.

TOPIC TAGS: lubricant, lubrication, additive, oil, engine, mechanism, sulfurous, S-containing, S, crude, premium, Series 0, Series I, Series II, Series III, AS-9, 5, DS-8, DS-11, VNII NP-360, TsIATIM-339, VNII NP-362, PMS$_{Ya}$, Anglomol, Monsanto, Santalube, DK-2, Esso, Castrol, Shell, Rimula, Mobilguard, YaAZ-204, GAZ-51, D-35, 2D100, oxidation, antioxidation, ash content, PZV, Kolomenskoye.

ABSTRACT: The paper sets forth the generalization of results of tests of a number of domestic additives in comparison with some foreign additives, in an attempt to obtain oils of Series I, II, and III by means of such additives. Tests comprised Esso 20W/30 and AS-9, 5 with various additives in the premium grade (Series 0); Castrol-30, Shell X-100, and DS-11 with various additives in Series I; Rimula-30,

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SAE 30 (Shell), and DS-11 with additives in Series II; and Mobilguard-593 and DS-11 with Santalube-311 additive in Series III. Ash content, PZV merit factor, oxidation in the DK-2 testing device (residue in %, change in viscosity in cst at 100°C, and high-temperature stability in min) are tabulated. Detailed data for engine tests in the GAZ-51, D-35, and YaAZ-204 engines, as well as 600-hr long-term tests in the GAZ-51 are tabulated. Details on the operational qualities of DS-8 and DS-11 with various additives are adduced. These laboratory investigations and engine tests of oils with additives show that existing domestic additives permit the obtainment of engine oils of a new grading system corresponding to foreign oils of premium and Series I type for stringent engine-operating conditions. These oils are also suitable for use in older engines. Additives for oils of Series II and III, required for newly projected engines, must still be developed. Some domestic additives, suitable for making of oils of Series 0 and I, approach the quality of foreign additives. However, additional work is required to establish optimal selection and concentration criteria for these additives. Additional work is required to improve additives for oils of Series I for engines such as the Kolomenskoye-Plant Diesel engines, the SPGG, and others. Additional work to reduce the content or change the character of metal-organic compounds in additives is required to reduce the precipitates in the combustion chamber which increase the wear; the antioxidation properties of additives must also be improved.

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ACCESSION NR: AT3002006

Orig. art. has 7 tables.

ASSOCIATION: VNII NP

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REZNIKOV, V.D.; BOROVAYA, M.S.

Effect of the blowback of gases through piston rings into the crankcase of a motor on the aging of oil. Khim. i tekh. topl. i masel. 6 no.10:48-51 O '61. (MIRA 14:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut po pererabotke nefti i gaza i polucheniyu iskusstvennogo zhidkogo topliva.
(Gas and oil engines)
(Lubrication and lubricants)

32531
S/065/62/000/001/002/002
E194/E135

11.9100 also 1583

AUTHORS: Puchkov, N.G., Borovaya, M.S., Belyanchikov, G.P., Zelenskaya, R.G., and Severov, Ye.G.

TITLE: Service performance of basic lubricants refined in different ways

PERIODICAL: Khimiya i tekhnologiya topliv i masel, no.1, 1962, 53-59

TEXT: Engine tests at the VNII NP showed that engine oils derived from Eastern high sulphur crudes caused ring-sticking. In this respect alone they were worse than Baku oils, being equal or better in all other respects. Accordingly, a study was made of hydrocarbon group and ring structure and other properties of various lubricants before and after engine testing. Eastern and Baku oils were found to be generally very similar but differ in the content of sulphur compound and in hydrocarbon structure. Because of their constitution Eastern oils oxidise to form oxyacids and asphaltenes which promote ring sticking. Even though the oil-resin contents of the initial base oils were

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Service performance of basic ...

similar, the oils from Eastern crudes produced more lacquer in the engine and in a laboratory oxidation test than did Baku oils. Oils deeply refined by solvent, acid or adsorbents were more stable, but whereas the Baku oils so refined deteriorated at a steady rate the Eastern oils displayed an induction period, being initially the more stable, but later oxidising more rapidly. Adsorption refining was particularly effective in improving the stability of the oils and reducing ring sticking with oils of Eastern crudes, giving satisfactory performance even without the use of additives. Work is in progress on hydrofined Eastern oils and preliminary indications are that this treatment gives somewhat higher VI than solvent treatment. However, hydrofined Eastern oils have inferior additive susceptibility, particularly to sulphonates, though their properties were much improved by additive ВНИИ НП-360 (VNII NP-360). Hydrofined oils with this additive behaved well in 100 and 600 hour gasoline engine tests and in 800 hour diesel engine tests. A simple comparison of certain physical properties of hydrofined Eastern oil with those of Essolube, and Shell Rimula oils, indicates that the Soviet

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Service performance of basic ... 32531
S/065/62/000/001/002/002
E194/E135

base oils can be as good as foreign ones. The need to match additive to base oil is emphasised.
There are 5 figures, 9 tables and 4 Soviet-bloc references.

ASSOCIATION: VNII NP

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BOROVAYA, M.S.

14

KUSAKOV, M.V., GOLDSHTEYN, D.L., GUSENKOVA, YE.A., ALFINOVA, E.A., BOROVAYA, M.S., PUCHKOV, N.G., KAZANSKIY, V.L., BADYSHTOVA, K.M., ROGACHEVA, I.M., CHESNOKOV, A.A., DENISENKO, K.K., ALTSHULER, A.G., GERASIMENKO, N.M., YASTREBOVA, O.I., ZHADANOVSKIY, N.B.

Production of High-grade petroleum oils and waxes by hydrogenation.

Report to be submitted for the Sixth World Petroleum Congress, Frankfurt, 19-26 June 63

L 12400-63 EWT(j)/EPF(c)/EWT(m)/BDS AFFTC/ASD/APGC Pc-4/Pr-4 EW/
RM/WW/DJ
ACCESSION NR: AP3001669 S/0065/63/000/006/0052/0057 72

AUTHOR: Blagovidov, I. F.; Borovaya, M. S. 15

TITLE: Effect of polymethylsiloxane liquids on motor oil properties 17

SOURCE: Khimiya i tekhnologiya topliv i masel, no. 6, 1963, 52-57

TOPIC TAGS: polymethylsiloxane, motor oil properties, multigrade oil additives, polymerization, condensation products, oil oxidation, alkylphenol, sulfonate, alkyl salicylate detergent additives, sludge formation

ABSTRACT: A series of multigrade oil additive packages containing 0.003-0.005% PMS-200A polymethylsiloxane liquid, developed at VNII NP, has been found equal and in some cases superior to the best foreign additives. The silicone, besides its antifoam characteristics, also reduces the formation of polymerization and condensation products during oxidation of oil containing alkylphenol, sulfonate, and alkyl salicylate detergent additives at 200-260C. The salicylate additive not only reduces sludge formation, like the others, but also lessens the viscosity increase of the oxidized oil. The silicone enhances this effect. Orig. art. has: 5 figures and 3 tables.

Card 1/2

BLAGOVIDOV, I.F.; BOROVAYA, M.S.; DRUZHININA, A.V.; DERYABIN, A.A.; ZASLAVSKIY, Yu.S.; MONASTYRSKIY, V.M.; PUCHKOV, N.G.; FILIPPOV, V.F.

Selecting additives to oils for various uses. Khim. i tekh. topl. i masel. 8 no.3:54-62 Mr '63. (MIRA 16:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut po pererabotke nefti i gazov i polucheniyu iskusstvennogo zhidkogo topliva.
(Lubrication and lubricants—Additives)

BLAGOVIDOV, I.F.; BOROVAYA, M.S.

Effect of a polymethylsiloxane liquid on the properties of motor oils. Khim. i tekh. topl. i masel 8 no.6:52-57 Je '63. (MIRA 16:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut po pererabotke nefti i gazov i polucheniyu iskusstvennogo zhidkogo topliva.

(Siloxanes)
(Lubrication and lubricants)

ACCESSION NR: AP4014972 S/0065/64/000/002/0057/0062

AUTHORS: Blagovidov, I.F.; Borovaya, M.S.

TITLE: Investigation of the receptivity of different basic oils to additives.

SOURCE: Khimiya i tekhnologiya topliv i masel, no. 2, 1964, 57-62

TOPIC TAGS: oil, oil refining, oil additive receptivity, viscosity index, oil stability, selective refining, adsorbent refining, oil hydrogenation,

ABSTRACT: Basic oils from sulfurous petroleums having a viscosity of V_{100} = 11 centistokes were refined with phenol, synthetic adsorbents or hydrogenation at 250 atmospheres, with the viscosity index being used as the indicator to determine the extent of refining. To evaluate stability and compatibility with additives, the oil was tested for stability at 250° and for corrosiveness at 140° after 25 hours (using a catalyst). Basic oils with the same viscocity index values show practically the same receptivity to additives, regardless

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ACCESSION NR: AP4014972

of the purification method. By refining up to a viscosity index of about 85 less precipitate is formed after oxidation and there is less increase in viscosity, and by refining to viscosity index above 85 receptivity of the oils to additives is increased very little (selective refining to viscosity index above 96 does result in somewhat higher stability). It was also found that adsorption refined distillate oils are less receptive to additives than adsorption refined oils containing residual components. Orig. art. has: 5 tables.

ASSOCIATION: VNII NP

SUBMITTED: 00 DATE ACQ: 26Feb64 ENCL: 00

SUB CODE: FL NR REF SOV: 011 OTHER: 000

Card 2/2

L 9102-65 EWT(m)/EPF(c)/T/EWP(b) Pr-4 ASD(m)-3/AFETR/ASD(p)-3/SSD/
AFTC(p) JD/WB/IJ

ACCESSION NR: AT3001319 S/2933/63/005/000/0231/0235

AUTHOR: Ramayya, K. S.; R. Kh. Sil's; M. S. Borovaya; N. G. Puchkov B

TITLE: A method for determining the corrosiveness of oils from sulfur-containing crude oils and the anticorrosive effect of additives

SOURCE: AN SSSR. Bashkirskiy filial. Khimiya seraorganicheskikh soyedineniy, soderzhashchikhsya v neftyakh i nefteproduktakh, v. 5, 1963, 231-235

TOPIC TAGS: lubricating oil, crude oil, sulfurous crude, corrosion, oil additive, corrosion prevention, alkylphenol, alkylsalicylate, copper stearate, copper naphthenate, hydrorefining

ABSTRACT: Investigations by the standard methods give excessively low values for oil corrosiveness, and the testing conditions are too mild for the differential evaluation of the anticorrosive effectiveness of currently used additives. The corrosiveness of motor oils obtained from sulfur-containing crudes was therefore investigated using experimental conditions which were chosen in consideration of the fact that in an engine, the processes of oxidation are catalyzed by the metal surface of the machine parts as well as by the abrasion products, various highly dispersed metal particles suspended in the oil, and by organic metal salts dissolved or dispersed in the oil. Thus, in order to catalyze the

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L 9102-65

ACCESSION NR: AT3001319

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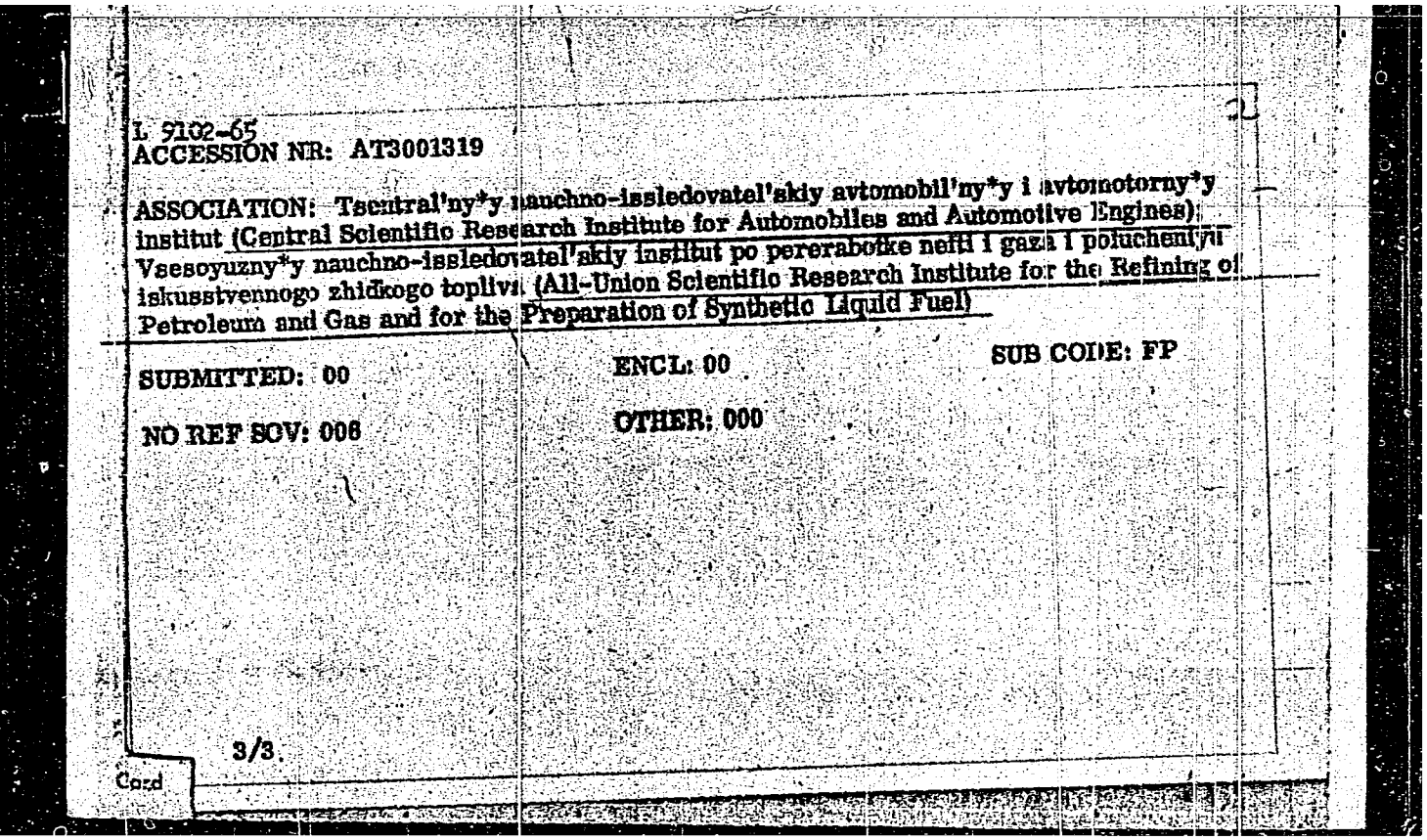
oxidative reactions during the 25-hour experiment, copper stearate or naphthenate were added in the amount of 0.02% by weight. The results of tests with and without a catalyst at 140C on five selectively refined oil samples and five hydrorefined oil samples obtained from sulfur-containing crude oils showed that the corrosion of lead in oils from sulfurous crudes was increased considerably under the influence of a catalyst. A study of additives under similarly extreme experimental conditions showed that motor oils with almost no corrosiveness can be obtained by the combination of alkylphenol additives with alkyl-salicylates (up to 10% and higher) or by additives consisting of cleansing and inhibiting components. The effect of barium and calcium sulfonates on lead corrosion in different oils is plotted against time for different additive concentrations, and the advantages of sulfonate additives over others with respect to their stabilizing and anticorrosive effects are shown. The corrosion factor obtained by the method proposed in this paper indirectly evaluates the oxidizability of the oil; it can therefore be recommended under technical conditions for oils designed for contemporary internal combustion engines. Orig. art. has: 3 figures and 2 tables.

2/3

Card



L 9102-65
ACCESSION NR: AT3001319

ASSOCIATION: Tsentral'ny*y nauchno-issledovatel'skiy avtomobil'ny*y i avtomotorny*y institut (Central Scientific Research Institute for Automobiles and Automotive Engines); Vsesoyuzny*y nauchno-issledovatel'skiy institut po pererabotke nefti i gaza i polucheniyu iskusstvennogo zhidkogo topliva (All-Union Scientific Research Institute for the Refining of Petroleum and Gas and for the Preparation of Synthetic Liquid Fuel)

SUBMITTED: 00 ENCL: 00 SUB CODE: FP

NO REF SOV: 006 OTHER: 000

3/3

Card

L 20632-66 EWT(m)/T DJ

ACC NR: AP6011220 (A) SOURCE CODE: UR/0413/66/000/006/0057/0057

INVENTOR: Blagovidov, I. F.; Druzhinina, A. V.; Monastyrskiy, V. N.; Puchkov, N. G.; Deryabin, A. A.; Borovaya, M. S.; Filippov, V. F.; Avaliani, T. K.; Zaslavskiy, Yu. S.; Tarmanyan, G. S.; Shor, G. I.; Dmitriyeva, N. A.; Belyanchikov, G. P.; Kuliyev, A. M.; Suleymanova, F. G.; Zaynalova, G. A.; Sadykhov, K. I.

ORG: none

TITLE: Preparative method for motor oils. Class 23, No. 179868

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 6, 1966, 57

TOPIC TAGS: lubricating oil, lubricant additive

ABSTRACT: An Author Certificate has been issued for a preparative method for motor oils, involving the introduction of additives. To impart the required service properties, the additives used are an alkylphenol-formaldehyde condensation product (3—15%), a sulfonate additive (1—6%), an additive based on xanthates or dithiophosphates (0.5—1%), and an organosilicon additive (0.003—0.005%) [the additives are no further identified in the source]. [SM]

SUB CODE: 11/ SUBM DATE: 02Aug62/ ATD PRESS: 4225

Card 1/1 UDC: 665.521.5002.237

TSERKOVNITSKAYA, I.L.; BOROVAYA, N.S.

Behavior of zirconium during the extraction of uranium and niobium diethyldithiocarbamates. Uch. zap. LGU no.297:96-98 '60.
(MIRA 13:11)

(Zirconium) (Carbamic acid)

MORACHEVSKIY, Yu.V.; BOBOVAYA, N.S.

Separation of small amounts of zirconium by extraction with tributyl phosphate. Uch. zap. LGU no.297:99-101 '60. (MIRA 13:11)
(Zirconium) (Butyl phosphate)

TSERKOVNITSKAYA, I.A.; BOROVAYA, N.S.

Determination of small amounts of zirconium in native materials. Vest. LGU 17 no.16:148-150 '62. (MIRA 15:9)
(Zirconium) (Rocks--Analysis)

L 36246-65 EWT(m)/EPF(b)/EPR/EWP(t)/EWP(b) Pr-4/Ps-4 IJP(c)
JD/JW/JG/JS

ACCESSION NR: AT5007819 S/0000/64/000/000/0084/0087

AUTHOR: Tserkovnitskaya, I. A.; Borovaya, N. S.; Bakhvalova, M. N.

TITLE: A scheme for the analysis of multi-component materials with the determination of aluminum, beryllium, barium, strontium, calcium, magnesium, lead and fluorine

SOURCE: Leningrad. Universitet. Metody kolichestvennogo opredeleniya elementov (Methods for the quantitative determination of elements). Leningrad, Izd-vo Leningr. univ., 1964, 84-87

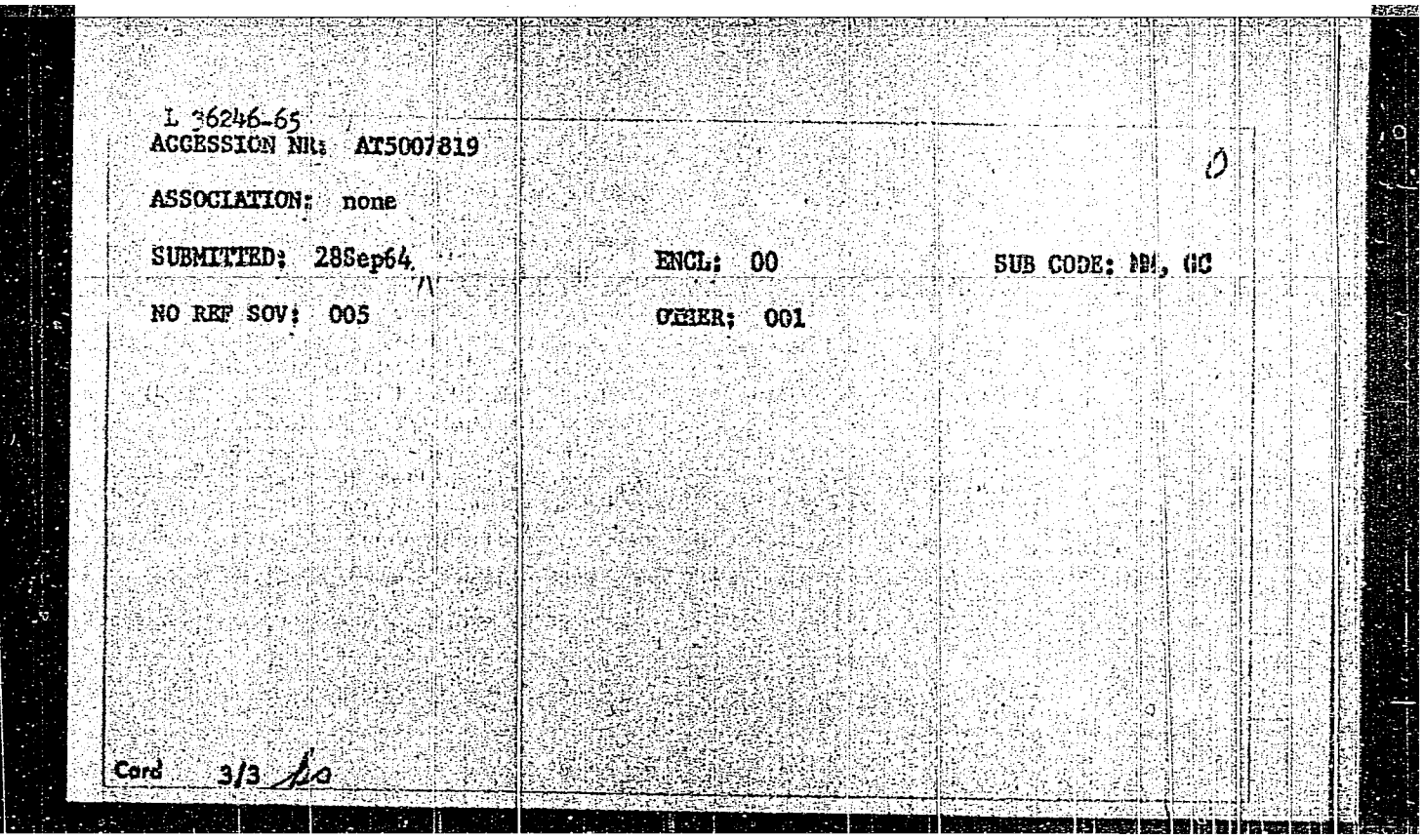
TOPIC TAGS: aluminum determination, beryllium determination, barium determination, strontium determination, calcium determination, magnesium determination, lead determination, fluorine determination, ore analysis, complexometric titration, amperometric titration

ABSTRACT: A method was developed for determining Al, Be, Ba, Sr, Ca, Mg, Pb and F in minerals, designed particularly to improve the separation of Al and Be, and of Ca and Sr. Separation of the latter two elements by various published methods did not give satisfactory results and their concentration was calculated by presented formulas from their combined determination as oxides and by complexometric titration. Pb was removed electrolytically from an aliquot part of the nitrate

Card 1/3

solution of the elements, dissolved in HNO_3 in the presence of H_2O_2, and complexometrically titrated with the indicator Eriochrome Black T. Al and Be, precipitated as hydroxides from the solution after removal of Pb, were reprecipitated and separated by precipitation and gravimetric determination of Al with hydroxyquinoline, determining Be in the filtrate as the hydroxide with NH_4OH. Ba, precipitated in the filtrate as the chromate, was dissolved in $HClO_4$ solution and determined by amperometric titration of chromic acid with Mohr's salt. Sr and Ca were precipitated in the filtrate as oxalates in the presence of Trilon B, calcined and weighed, dissolved in HCl and titrated with 0.05 N Trilon B solution. The concentration of Ca and Sr was calculated from the equations $x + y = A$, and $nx + my = B$, x being CaO, mg; y SrO, mg; A CaO + SrO, mg; n and m the amount of Trilon B corresponding to 1 mg CaO and 1 mg SrO, respectively, and B the amount of Trilon B used for titrating CaO + SrO, in ml. Mg was determined in a second part of the solution by removing hydroxides with ammonia, and precipitating Ba, Sr, and Ca in the presence of ethanol with sulfuric acid, and by complexometric titration of Mg with Acid Chrome Navy as indicator. Fluorine was determined in a separate sample by distillation as fluosilicic acid, precipitation in the presence of NH_4OH with an excess of $CaCl_2$, and titration of the latter with Komplexon III and Acid Chrome Navy. Orig. art. has: 2 tables.

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206510014-2"



L 36246-65
ACCESSION NR: AT5007819

ASSOCIATION: none

SUBMITTED: 28Sep64 ENCL: 00 SUB CODE: NP, GC

NO REF SOV: 005 OTHER: 001

Card 3/3

BOROVCHENKO, Ye.A.

Experimental investigation of the rate of turbulent propagation of a flame in a suspension of peat dust and peat semicoke in air. Trudy Inst.energ.AN BSSR no.3:113-127 '57. (MIRA 12:1)

(Flame) (Peat)

BOROVCHENKO, Ye, A., Cand Tech Sci -- (diss) "Study of the speed of ~~propagation~~ radiation of ~~the~~ turbulent flame in ~~the~~ aerial suspension of peat and peat semi-coke."

Minsk, 1958, 19 pp with illustrations (Acad Sci Belorussian SSR. Inst of Power Engineering)

100 copies (KL, 29-58, 131)

BOROVCHENKO, Ye.A.

Spread of turbulent flame in single-phase and two-phase combustion systems. Dokl.AN BSSR 3 no.3:100-102 Mr '59.
(MIRA 12:8)

1. Predstavleno akademikom AN BSSR A.V.Lykovym.
(Combustion)

BOROVCHENKO, Ye.A.

Some methods for intensifying combustion. Trudy Inst. energ. AN BSSR no.11:78-84 '60. (MIRA 14:9)
(Furnaces) (Combustion)

BOROVCHENKO, Ye.A. [Barouchanka, IA.A.]

Gas-formation processes in a cyclone combustion chamber in burning milled peat. Vestsi AN BSSR. Ser. fiz-tekh. nav. no.4:118-124 62. (MIRA 18:4)

BOROVCHENKO, Ye.A.; ZHITKEVICH, L.K.; FINAYEV, Yu.A.

Burning of shredded peat in cyclone furnaces with liquid slag removal. Inzh.-fiz. zhur. 7 no.4:94-99 Ap '64. (MIRA 17:4)

1. Institut teplo-i massoobmena AN BSSR, Minsk.

BOROVEC, Bohumir

Automobiles Skoda 706. Tech praca 14 no.4:317-322 Ap '62.

1. Liberecke automobilove zavody, n.p., Rynovice, obchodne-technicka sluzba.

KASUMOVIC, Nevenka; SPIGELHALTER, Lj.; BOROVECK, I.

3 cases of poisoning by nitrous gases in a shipyard. Arh. hig. rada 13 no.3:231-238 '62.

1. Medicinski centar Pula.
(WELDING) (OCCUPATIONAL DISEASES)

5

YUGOSLAVIA

Nevenka KASUMOVIC, Lj. SPIGELHALTER and I. BOROVECKI, Medical Center (Medicinski centar), Pula.

"Three Cases of Nitrous Fume Poisonings in a Shipyard."

Zagreb, Arhiv za Higijenu Rada i Toksikologiju, Vol 13, No 3, 1962; pp 231-238.

Abstract [English summary modified] : Case histories of 3 workers who had pulmonary edema symptoms of varying degrees of severity following acetylene-torch welding is small unventilated cabins. Two had been welding in a small room on board ship, having only a narrow slit on ceiling, "uninterruptedly all day from 7 in the morning till 1 after midnight". All recovered. Preventive measures are outlined. Case report, 3 chest x-rays; 5 German, 1 Soviet and 8 Yugoslav references.

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ACCESSION NR: AT4010228 S/3056/63/000/000/0076/0084

AUTHOR: Borovenko, E. V.; Volkovitskiy, O. A.; Zolotarev, L. M.; Isayeva, S. A.

TITLE: Effect of the construction of a 300-meter meteorological tower on measurements of wind velocity

SOURCE: Issledovaniye nizhnego 300-metrovogo sloya atmosfery*. Moscow, 1963, 76-84

TOPIC TAGS: meteorology, wind, wind velocity measurement, meteorological tower, meteorological tower construction, anemograph, anemometer, rhumbograph

ABSTRACT: Since the main disturbances in wind velocity recording are caused by the cylindrical body of the tower, all the calculations in this paper concern flow determination of an ideal fluid around a stationary cylinder (mathematical formulations are given for flow around a cylinder, the rate of flow, the relationship of the rate of flow to the rate at infinity, and their dependence on tower radius and angle of the monitor). In September and October of 1961 a series of special measurements was carried out using a remote photoimpact anemograph and unidimensional rhumbographs. The examples, tables, and conclusions are based on the results of these observations. It was found that the effect of the tower on readings of wind velocity was in the range of ± 3%. No significant effects on

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ACCESSION NR: AT4010228

wind velocity readings were produced by other types of tower appurtenances (i.e. balcony, railing, etc.). In an arrangement where the anemometers were placed at a distance r > 12 meters, the effect of the tower on their readings was expressed by a deviation of approximately 1%, which is not significant in practice. The smallest effect on wind velocity readings was observed when the anemometers were turned into the wind at an angle of ± 45°, and for monitors turned with the wind the effect of the tower (r = 7.5 meters) did not exceed 1.5°. Orig. art. has: 8 figures, 1 table, and 9 formulas.

ASSOCIATION: none

SUBMITTED: 00 DATE ACQ: 20Feb64 ENCL: 00

SUB CODE: AS NO REF SOV: 002 OTHER: 000

Card 2/2

L 54477-65 EEC-2/EWT(d)/FBD/EWT(l)/EEC(a)/EWP(m)/FS(v)-3/EEC(j)/EEC(k)-2/EEC(f)/
EEC(r)/EWG(r)/EWA(d)/EEC(c)-2/EAD-2/EWA(c)/FSS-2 Pn-4/Po-4/Pe-5/Pq-4/
ACCESSION NR: AP5015666 Pac-4/Pg-4/Pae-2/Ph-4/ UR/0293/65/003/003/0380/0390
Pk-1/Pl-4 IJP(c) 521.15:531.38:629.1
AST/GW/BC

AUTHOR: Borovenko, V. N.

TITLE: Some questions on predicting movements about the center of mass of apparatus in outer space

SOURCE: Kosmicheskiye issledovaniya, v. 3, no. 3, 1965, 380-390

TOPIC TAGS: space orientation, flywheel, kinetics, space mechanics, vector study

ABSTRACT: The author examined the problem of predicting rotational movements of apparatus in space when the disturbing movements are known. Coordinates are introduced for the apparatus to permit clear geometric description of movements of the kinetic moment vector on linked axes. He investigated particularly the movement of this kinetic moment vector on standard Cartesian coordinates for the apparatus when the disturbing effect is chiefly internal, such as dynamic asymmetry, flywheel rotation, damping liquid, and steady disturbing moments. It is shown that the dynamic asymmetry of the apparatus, the flywheel motion with constant angular moment, and the steady disturbing moments acting on a plane normal to the axis of rapid motion do not affect the secular movements of the kinetic

Card 1/2

L 56572-65

ACCESSION NR: AP5015666

2

moment vector. By means of averaging equations of the movement, final formulas are obtained for computing the secular movements of the kinetic moment vector as a consequence of the effect of liquids in several chambers of the apparatus and of the effect of the steady disturbing moment acting on the axis of rapid rotation. The possible trajectories of the unit kinetic moment vector on a unit sphere along the Cartesian coordinates of the apparatus are analyzed qualitatively. "In conclusion, the author expresses his thanks to V. V. Beletskiy and B. I. Rabinovich for their interest in this work." Orig. art. has: 8 figures, 3 tables, and 24 formulas.

ASSOCIATION: none

SUBMITTED: 090ct64 ENCL: 00 SUB CODE: AA, MG

NO REF SOV: 007 OTHER: 000

Card 2/2

KLIKA, E.; BOROVENSKIY, L. [Borovanskiy, L.]

Fourth Conference of Czechoslovak Morphologists in Hradec Králové. Arkh. anat. gist. i embr. 41 no.7:126-127 Jl '61. (MIRA 15:2)
(MORPHOLOGY--CONGRESSES)

BOROVENSKIY, S.I.; VITAVER, L.M., red.

[Course in mathematical analysis: Introduction to analysis; a textbook for students of the Institute of Engineers of Water Transport] Kurs matematicheskogo analiza: Vvedenie v analizy uchebnoe posobie dlia studentov instituta inzhenerov vodnogo transporta. Novosibirsk, Novosibirskii in-t inzhenerov vodnogo transp., 1961. 121 p. (MIRA 18:3)

BOROVETS, S. A.

20655 Borovets, S.A. Razrezka podrodnykh massivov na bliki betonirovaniya. Gidrotekhn. Stroit-vo, 1949, No. 6, s. 23-27

SO: LETOPIS ZHURNAL STATEY - Vol. 28, Moskva, 1949

14(10)

SOV/112-59-3-4683

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1959, Nr 3, p 55 (USSR)

AUTHOR: Borovets, S. A.

TITLE: Method for Selecting Reinforcement for Concrete Massif on the Basis of Shrinkage Stresses (Metod podbora armatury v betonnom massive po usadochnym napryazheniyam)

PERIODICAL: Tr. Sredneaz. n.-i. in-ta irrigatsii, 1957, Nr 90, pp 49-58

ABSTRACT: Recommendations are given on methods of qualitative evaluation of shrinkage and creep in lightly-reinforced concrete; data is presented about the dependence of concrete creep on block size. On the basis of the above data, a method is developed for computing stresses in a free slab due to shrinkage and creep of concrete in hydraulic structures and for figuring the necessary quantity of reinforcement. The stressed state of concrete allowing for its plastic properties is determined from instantaneous elastic stresses in the concrete massif considered as a perfectly elastic body; Professor A. V.

Card 1/2

14(10) SOV/112-59-3-4683

Method for Selecting Reinforcement for Concrete Massif on the Basis of . . . .

Belov's method is used since it shows the results closest to the experimental data. The above method allows considerable savings on the reinforcing steel.

L.S.Ts.

Card 2/2

BOROVETS, S.A., inzh.

Nurek Hydroelectric Power Station on the Vakhsh River. Gidr.stroi. 31 no.6:3-8 Je '61. (MIRA 14:6)
(Nurek Hydroelectric Power Station)

BOROVETS, Ya. A.

Dissertation: "Question on the Innervation of Intratrunk Vessels of Large Peripheral Nerve Trunks." Cand Med Sci, Tashkent Medical Inst, 23 Jun 54.
Pravda Vostoka, Tashkent, 29 May 54.

SO: SUM 284, 26 Nov 1954

BOROVETSKA, T. V.

Dissertation: "Data on the Structure of the Core of the Hair of Animals and the Differentiation of Sheep and Goat Wool in Forensic Medicine." Cand Med Sci, First Moscow Order of Lenin Medical Inst, 10 May 54. Vechernyaya Moskva, Moscow, 2 May 54.

SO: SUM 284, 26 Nov 1954

Borovich, M.S.

Tensile tests

Results of Works Trials on ZD-10A Tensile Testing Machines. M. M. Kobrin and A. S. Borovich. (*Zavodskaya Laboratoriya*, 1950, No. 3, 378–380). [In Russian]. A description is given of a series of tests carried out on new tensile testing machines under works conditions. Suggested improvements are listed.

ACC NR: AP5026590 EWA(h) EWA(k)/EWT(l)/EWP(e)/EWT(m)/EEC(k)-2/EWP(i)/EWP(j)/T/EWP(k)/EWA(m)-2/ SCTB/IJP(c) WG/RM/WH SOURCE CODE: UR/0056/65/049/004/1031/1037

AUTHOR: Borovich, B. L.; Zuyev, V. S.; Shcheglov, V. A. 44

ORG: Physics Institute im. P. N. Lebedev, Academy of Sciences, SSSR (Fizicheskiy institut Akademii nauk SSSR) 44

TITLE: Laser with a saturated Q-switch

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 49, no. 4, 1965, 1031-1037

TOPIC TAGS: solid state laser, ruby laser, Q switching, passive switching, phthalocyanine

ABSTRACT: On the basis of rate equations an analysis is made of the kinetics of processes in a ruby laser where Q-modulation is accomplished by means of a saturated vanadium phthalocyanine solution in nitrobenzene. Two modes of excitation (soft and hard) are shown to exist. In the hard mode, the laser excitation threshold is determined by the parameters of the system. At amplitudes of the initiating signal in excess of the threshold, a pulse of standard amplitude and width is produced in the system. If spontaneous decay is neglected, the problem can be solved in quadratures. The condition for generation of a giant pulse and its maximal value are derived for this case. Two experiments were carried out with a ruby rod 120 mm long and 10 mm in diameter (see Fig. 1). In the first experiment, the end of the ruby rod

Card 1/3

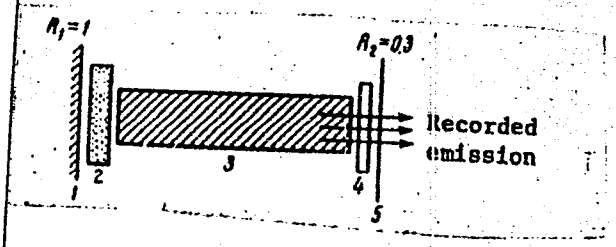


Fig. 1. Experimental setup

1 - 100% mirror; 2 - vessel containing phthalocyanine solution (5 mm thick, initial absorption 90%); 3 - ruby rod 120 mm long and 10 mm in diameter with opaque ends; 4 - plane parallel glass plate; 5 - 70% mirror.

was parallel with the mirrors (100 and 70% transparent). A giant pulse was generated when the pumping energy was sufficiently high to excite standard generation at the 30% mirror and the ruby end. A 10-nanosec 1-j pulse was emitted 300 μsec after the flashlamp firing. In the second experiment, the ruby was placed at a certain angle (~0.5°) to the mirrors, and the plane-parallel glass disk (which maintains total resonator losses at the same level in both experiments) was removed. A considerable increase in pumping energy failed to yield standard generation. A 20—25 nanosec ~1/15-j pulse was emitted after 400—600 μsec. The experiments demonstrated that a considerable delay in the development of a giant pulse occurred during excitation without a starting pulse, and significant differences between the experimental values of pulse width and energy were apparent. The low energy yield in the second experiment was attributed to uneven pumping. The increased pulse width was explained in terms of two mechanisms, of which one, suggested earlier by R. W. Hellwarth (Quantum Electronics, Proc. of the 3rd Intern. Congress, ed. P. Grivel, N. Bloembergen, Dunod Editeur. Paris, Columbia Univ. Press, N. Y., 2, 1964, 1203), is due to cross-

ACC NR: AP5026590

relaxation of the R_1 lines in ruby and, partly, to relaxation between the $\bar{E}$ and $2\bar{A}$ levels. Orig. art. has: 7 figures and 11 formulas.

SUB CODE: EC/ SUBM DATE: 26Apr65/ ORIG REF: 002/ OTH REF: 004/ ATD PRESS: 4122

[YK]

Card 3/3

POPOV, P.K.; POPOV, N.G.; REZNIKOV, Z.O.; BOROVICH, I.L.; MOREYNIS, Ya.I.; RESH, G.S., red.; SOKOLOVA, I.A., tekhn. red.

[Technical, industrial, and financial plan for sugar plants; principles and methods of drawing them up] Tekhpromfinplan sakharnykh zavodov; printsipy i metodika sostavleniia. Moskva, Pishchepromizdat, 1958. 147 p.

(Sugar industry) (MIRA 11:12)

L 8641-65 EWT(1)/FCC/EWA(h) Po-4/Pq-4/Pae-2/Peb/Pi-4 GW
ACCESSION NR: AP4043729 S/0021/64/000/008/1051/1053

AUTHOR: Dolov, A. I.; Kashcheyev, B. L.; Borovy*ch, L. I. (Borovich, L. I.)

TITLE: Basic characteristics of turbulent motion in the earth's atmosphere at an altitude of 90-100 km

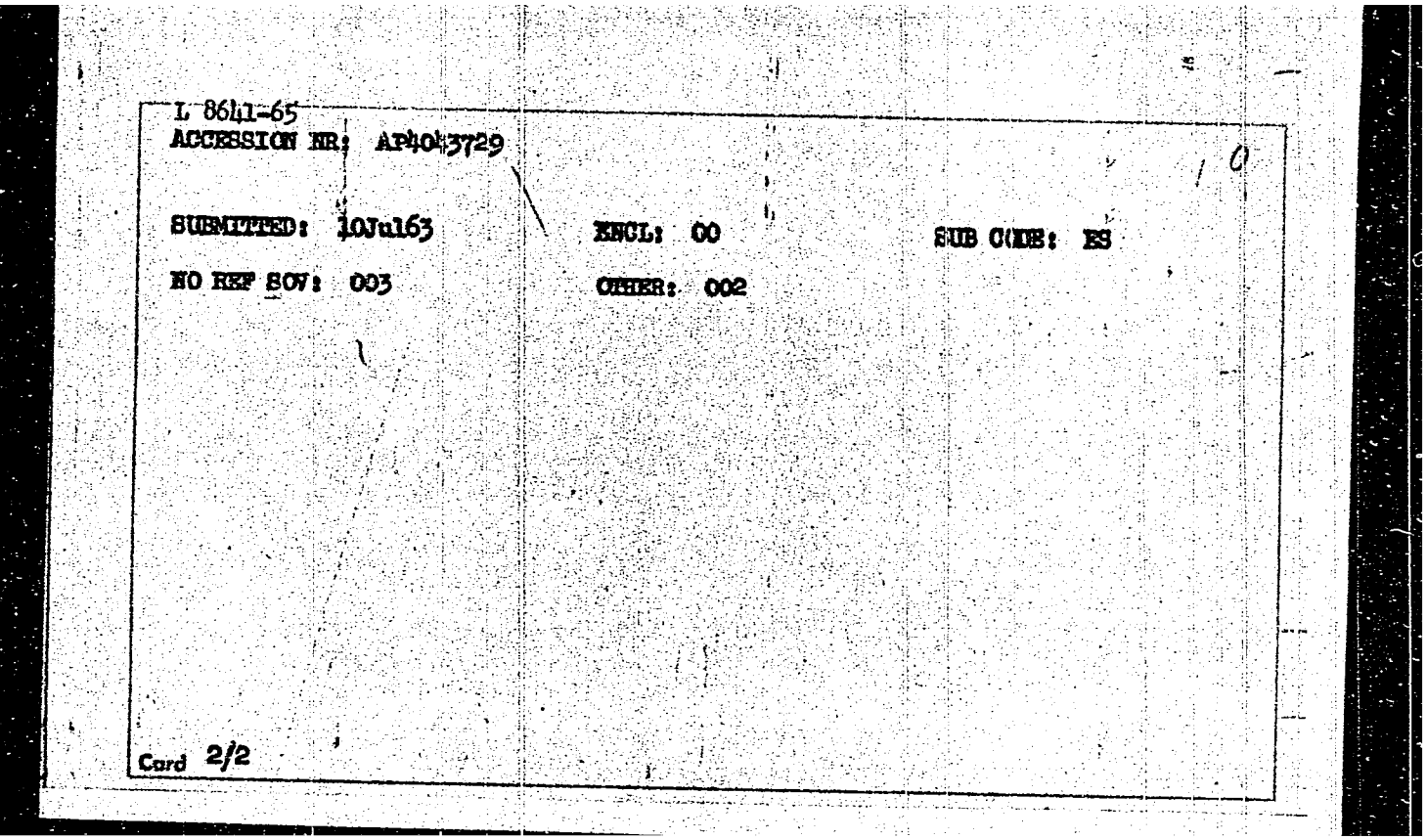
SOURCE: AN UkrRSR. Dopovidi, no. 8, 1964, 1051-1053

TOPIC TAGS: vertical turbulent motion, turbulent horizontal motion, motion velocity

ABSTRACT: The authors present the results of systematic investigations of turbulent motions conducted during a year. The quadratic rate of mean square motion equals 15--60 m/sec. The vertical gradient of pulsation velocity varies from 0 to 140 m/sec km. The dimensions of large-scale eddies: horizontal L_2 = 90 km, vertical l_e = 6.3 km.

ASSOCIATION: Khar'kivs'k*y politekhnichny*y insty*tyt (Kharkov Polytechnic Institute)

Card 1/2



L 8641-65
ACCESSION NR: AP4043729

SUBMITTED: 10Jul63 ENCL: 00 SUB CODE: ES

NO REF SOV: 003 OTHER: 002

Card 2/2

BOROVICH, L. S. Cand Tech Sci

Dissertation: Investigation of the Certain Forms of Joints Without Spline".

31 May 49

Central Sci Res Inst of Technology and Machine Building.

SO Vecheryaya Moskva
Sum 71

ACHERKAN, N.S., doktor tekhnicheskikh nauk, professor, redaktor;
BELYAYEV, V.N., kandidat tekhnicheskikh nauk, dotsent;
BIDERMAN, V.L., kandidat tekhnicheskikh nauk; BOROVICH, L.S., kandidat tekhnicheskikh nauk; GASHINSKIY, A.G., inzhener; GORODETSKIY, I.Ye., doktor tekhnicheskikh nauk, professor;
IVANOV, B.A., doktor tekhnicheskikh nauk, professor;
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SAVERIN, M.M., kandidat tekhnicheskikh nauk; SLOBODKIN, M.S., inzhener; SPITSYN, N.A., doktor tekhnicheskikh nauk, professor;
STOLBIN, G.B., kandidat tekhnicheskikh nauk, dotsent; UMNOV, V.A., inzhener; CHERNYAK, B.Z., kandidat tekhnicheskikh nauk;
SHCHEDROV, V.S., kandidat tekhnicheskikh nauk, dotsent.

[Machine parts; collection of materials on calculation and design in two volumes] Detali mashin; sbornik materialov po raschetu i konstruirovaniiu v dvukh knigakh. Izd.2. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit.i sudostroit.lit-ry. Vol. 2. 1953. 560 p. (MLRA 6:12)
(Machinery--Design)

AL'SHITS, I.Ya., kandidat tekhnicheskikh nauk; BABKIN, S.I., kandidat tekhnicheskikh nauk; BALAKSHIN, B.S., doktor tekhnicheskikh nauk, professor; BEYSEL'MAN, R.D., inzhener; BELYAYEV, V.H., kandidat tekhnicheskikh nauk; BEREZINA, N.I., inzhener; BIRGER, I.A., doktor tekhnicheskikh nauk; BOGUSLAVSKIY, Yu.M., kandidat tekhnicheskikh nauk; BOROVICH, L.S., kandidat tekhnicheskikh nauk; GONIKBERG, Yu.M., inzhener; GORDON, V.O., professor; GORODETSKIY, I. Ye., doktor tekhnicheskikh nauk, professor; GROMAN, M.B., inzhener; DIKER, Ya.I., kandidat tekhnicheskikh nauk; DOSCHATOV, V.V., inzhener; IVANOV, A.G., kandidat tekhnicheskikh nauk; KINASOSHVILI, R.S., doktor tekhnicheskikh nauk, professor; KRUTIKOV, I.P., kandidat tekhnicheskikh nauk; LEVENSON, Ye.M., inzhener; MAZYRIN, I.V. inzhener; MARTYNOV, A.D., kandidat tekhnicheskikh nauk; NIBERG, N.Ya., kandidat tekhnicheskikh nauk; NIKOLAYEV, G.A., doktor tekhnicheskikh nauk, professor; PETRUSEVICH, A.I., doktor tekhnicheskikh nauk; POZDNYAKOV, S.N., dotsent; PONOMAREV, S.D., doktor tekhnicheskikh nauk, professor; PRONIN, B.A. kandidat tekhnicheskikh nauk; RESHETOV, D.N., doktor tekhnicheskikh nauk, professor; SATEL', E.A., doktor tekhnicheskikh nauk, professor; SIMAKOV, F.F., kandidat tekhnicheskikh nauk; SLOBODKIN, M.S., inzhener; SPITSYN, N.A., doktor tekhnicheskikh nauk, professor; STOLBIN, G.B., kandidat tekhnicheskikh nauk; TATTS, B.A., doktor tekhnicheskikh nauk; CHERNYSHEV, H.A., kandidat tekhnicheskikh nauk; SHNEYDEROVICH, R.M., kandidat tekhni-

(Continued on next card)

AL'SHITS, I.Ya., kandidat tekhnicheskikh nauk (and others)..... Card 2.

cheskikh nauk, EYDINOV, V.Ya., kandidat tekhnicheskikh nauk; ERLIKH, L.B., kandidat tekhnicheskikh nauk; ACHERKAN, N.S., doktor tekhnicheskikh nauk, professor, redaktor; MARKUS, M.Ye., inzhener, redaktor; KARGANOV, V.G., inzhener, redaktor; SOKOLOVA, T.F., tekhnicheskiy redaktor.

[Mechanical engineer's manual; in 6 volumes] Spravochnik mashinostroitelia; v shesti tomakh. Izd.2-e, ispr. i dop. Moskva, Gos. nauchno-tekhn.izd-vo mashinostroit. lit-ry, Vol.4, 1955. 851 p. (Mechanical engineering) (MLRA 8:12)

KIST'YAN, Ya.G., kandidat tekhnicheskikh nauk; BOROVICH, L.S., kandidat tekhnicheskikh nauk, redaktor; SOKOLOVA, T.F., tekhnicheskiy redaktor.

[Methods for calculating the strength of gearing] Metodika rascheta zubchatykh zatseplenii na prochnost'. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. i sudostroit. lit-ry, 1954. 86 p.[Microfilm]
(Gearing--Testing) (MLRA 7:11)

IVANOV, Ye.A., kandidat tekhnicheskikh nauk, dotsent; IVANOV, B.A., doktor tekhnicheskikh nauk, professor, retsenzent; BOROVICH, L.S., kandidat tekhnicheskikh nauk, redaktor; TIKHONOV, A.Ya., tekhnicheskiy redaktor; MATVEYEVA, Ye.N., tekhnicheskiy redaktor.

[Transmission clutches] Mufty privodov. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1954. 346 p. (MLRA 8:1)
(Clutches (Machinery))

KIST'YAN, Ya.G., kandidat tekhnicheskikh nauk; BOROVICH, L.S., kandidat tekhnicheskikh nauk, redaktor; SOKOLOVA, T.F., tekhnicheskiy redaktor.

Gearing strength calculations. Nauchno-tekhnicheskaia informatsiia no.23:3-85 '54. (MLRA 7:11)
(Gearing)

BOROVICH, L.S., kandidat tekhnicheskikh nauk.

Starting point of a new standard for reducing gears. Standartizatsiia no.2:39-46 Mr-Ap '56. (MLRA 9:5)

1. TSentral'nyy nauchno-issledovatel'skiy institut tekhnologii i mashinostroyeniya.

(Gearing--Standards)

BOROVICH, L.S.; GABRICHEVSKIY, B.N.

New standards for the MUVP-type elastic clutches. Vest. mash. 36 no.9:17-23 '56. (MLRA 9:10)

(Clutches (Machinery))

BOROVICH, I.Ye., kandidat tekhnicheskikh nauk.

Operation and performance analysis of reducing gears used in rolling mills. [Trudy] TSNIITMASH 81:5-41 '56. (MLRA 9:12)
(Rolling mills) (Gearing)

BOROVICH, L.S., kandidat tekhnicheskikh nauk.

Effect of reasonable basic parameter selection on the weight reduction of reducing gears. [Trudy] TSNIITMASH 81:42-53 '56.
(Gearing) (MLRA 9:12)

BOROVICH, L.S.

BABKIN, S.I., kandidat tekhnicheskikh nauk; BALAKSHIN, B.S., professor, doktor tekhnicheskikh nauk; BEYZEL'MAN, R.D., inzhener; BELYAYEV, V.N., kandidat tekhnicheskikh nauk; BIRGER, I.A., kandidat tekhnicheskikh nauk; BOGUSLAVSKIY, P.Ye., kandidat tekhniceskikh nauk; BOROVICH, L.S., kandidat tekhnicheskikh nauk; VOL'MIR, A.S., professor, doktor tekhnicheskikh nauk; GONIKBERG, Yu.M., inzhener; GORODETSKIY, I.Ye., professor, doktor tekhnicheskikh nauk; GORDON, V.O., professor; DIMENTBERG, F.M., kandidat tekhnicheskikh nauk; DOSCHATOV, V.V., inzhener, IVANOV, A.G., kandidat tekhnicheskikh nauk; KIMASOSHVILI, R.S., professor; KODNIR, D.S., kandidat tekhnicheskikh nauk; KOLOMIYTSEV, A.A., kandidat tekhnicheskikh nauk; KRUTIKOV, I.P., kandidat tekhnicheskikh nauk; KUSHUL', M.Ya., kandidat tekhnicheskikh nauk; LEVENSON, Ye.M., inzhener; MAZYRIN, I.V., inzhener; MALININ, N.N., kandidat tekhnicheskikh nauk; MARTYNOV, A.D., kandidat tekhnicheskikh nauk; NIBERG, N.Ya., kandidat tekhnicheskikh nauk; NIKOLAYEV, G.A., professor, doktor tekhnicheskikh nauk; PETRUSEVICH, A.I., doktor tekhnicheskikh nauk; POZDNYAKOV, S.N., dotsent; PONAMOREV, S.D., professor, doktor tekhnicheskikh nauk; PRIGOROVSKIY, N.I., professor, doktor tekhnicheskikh nauk; PRONIN, B.A., kandidat tekhnicheskikh nauk; RESHETOV, D.N., professor, doktor tekhnicheskikh nauk; SATEL', E.A., professor, doktor tekhnicheskikh nauk; SERENSEN, S.V.; SLOBODKIN, M.S., inzhener; SPITSYN, N.A., professor, doktor tekhnicheskikh nauk; STOLBIN, G.B., kandidat tekhnicheskikh nauk; TAYTS, B.A., kandidat tekhnicheskikh nauk; TETEL'BAUM, I.M., kandidat tekhnicheskikh nauk; UMANSKIY, A.A., professor, doktor tekhnicheskikh nauk; FEODOS'YEV, V.I., professor, doktor tekhnicheskikh nauk;

(Continued on next card)

BABKIN, S.I.--- (continued) Card 2.
KHAYT, D.M., kandidat tekhnicheskikh nauk; SYDNOV, V.Ya., kandidat tekhnicheskikh nauk; SHRAYBER, M.M., inzhener, nauchnyy redaktor; SHEDROV, V.S., kandidat tekhnicheskikh nauk, nauchnyy redaktor; TSVETKOV, A.P., dotsent, nauchnyy redaktor; SLESNIKOV, G.I., inzhener, nauchnyy redaktor; MARKUS, M.Ye., inzhener, nauchnyy redaktor; KARGANOV, V.G., inzhener, nauchnyy redaktor; SCHERKAS, N.S., doktor tekhnicheskikh nauk, professor, redaktor; SOKOLOVA, T.F., tekhnicheskiy redaktor

[Manual of machinery manufacture] Spravochnik mashinostroitelia; v trekh tomakh. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit. lit-ry. Vol.3. 1951 1093 p. (MLRA 10:9)

1. Deystvitel'nyy chlen Akademii nauk USSR (for Serensen)
(Machinery)

BOROVICH, L.S.

TKACHEVSKIY, G.I., inzh.; BOROVICH, L.S., kand.tekhn.nauk

"Essential information about gear transmissions" by M.L.Mitsengendler. Reviewed by G.I.Tkachevskii, L.S.Borovich. Mashinostroitel' no.10:46-47 O '57. (MIRA 10:11)

(Gearing) (Mitsengendler, M.L.)

ZABLONSKIY, K.I., kand.tekhn.nauk, otv.red.; BOROVICH, L.S., kand.tekhn.nauk, red.; BELYAYEV, M.S., inzh., red.; GENKIN, M.D., kand.tekhn.nauk, red.; ZAK, P.S., kand.tekhn.nauk, red.; KIST'YAN, Ya.G., kand.tekhn. nauk, red.; KUDRYAVTSEV, V.N., doktor tekhn.nauk, red.; MAL'TSEV, V.F., kand.tekhn.nauk, red.; POLOTSKIY, M.S., kand.tekhn.nauk, red.; ERLIKH, L.B., kand.tekhn.nauk, red.; NIKIFOROV, I.P., inzh., red.; KOMISSARENKO, A.R., tekhred.

[Design, construction, and analysis of drives; proceedings of the conference on problems in designing, constructing, and analyzing gear drives and flexible gearing, September 23-28, 1957] Raschet, konstruirovanie i issledovanie peredach; trudy konferentsii po voprosam rascheta, konstruirovaniia i issledovanii zubchatykh peredach i peredach gibkoi sviazi'u 23-28 sentiabria 1957 g. Izd-vo Odesskogo politekhn.in-ta. Vol.1. 1958. 199 p. Vol.2. 1958. 94 p. (MIRA 12:5)

1. Odessa. Politekhnicheskiy institut.
(Gearing)

SOV-28-58-4-20/35

AUTHOR: Borovich, L.S., Candidate of Technical Sciences

TITLE: Unification of Cylindrical Reducers of General Use (Unifikatsiya tsilindricheskikh reduktorov obshchego naznacheniya)

PERIODICAL: Standartizatsiya, 1958, Nr 4, pp 60 - 66 (USSR)

ABSTRACT: In accordance with instructions issued by the Committee of Standards, Measures and Measuring Devices of the USSR Council of Ministers, TSNIITMASH, together with VNIIPTMASH and other plants, worked out standards for one, two and three-step cylindrical reducers of general use. For the purpose of finding the most suitable type for standardization, different layouts were analysed and basic parameters of reducers were investigated. It was found that from the economical and technological point of view, the most efficient constructional shape for small and medium size reducers are those with helical gears and an evolved layout. These types have been accepted for standardization. There are 3 sets of diagrams, 3 tables, 3 graphs and 4 Soviet references.

ASSOCIATION: TsNIITMASh

Card 1/1 1. Reduction gears--Standards

ZABLONSKIY, K.I., kand.tekhn.nauk, otv.red.; BOROVICH, L.S., kand.tekhn. nauk, red.; BELYAYEV, M.S., inzh., red.; GEMKIN, M.D., kand.tekhn. nauk, red.; ZAK, P.S., kand.tekhn.nauk, red.; KIST'YAN, Ya.G., kand.tekhn.nauk, red.; KUDRYAVTSEV, V.N., doktor tekhn.nauk, red.; MAL'TSEV, V.F., kand.tekhn.nauk, red.; POLOTSKIY, M.S., kand.tekhn. nauk, red.; ERLIKH, L.B., kand.tekhn.nauk, red.; NIKIFOROV, I.P., inzh., red.; KOMISSARENKO, A.R., tekhred.

[Design, construction, and investigation of transmissions; proceedings of the conference on design, construction, and investigation of transmissions; proceedings of the conference on design, construction, and investigation of gear and flexible transmissions of September 23-28, 1957] Raschet, konstruirovanie i issledovanie peredach; trudy konferentsii po voprosam rascheta, konstruirovaniia i issledovanii zubchatykh peredach i peredach gibkoi sviaz'iu 23-28 sentiabria 1957 g. Odessa, Izd.Odesskogo politekhn.in-ta. Vol.3. 1959. 123 p. (MIRA 12:10)

1. Odessa. Politekhnicheskiy institut.
(Gearing)

CHASOVNIKOV, Lev Dmitriyevich, kand. tekhn. nauk, dotsent; BOROVICH, L.S., kand. tekhn. nauk, retsenzent; DIKER, Ya.I., kand. tekhn. nauk, retsenzent; KIST'YAN, Ya.G., kand. tekhn. nauk, retsenzent; POLOTSKIY, M.S., kand. tekhn. nauk, retsenzent; KLENNIKOV, V.M., inzh., red.; MERENSKAYA, I.Ya., red. izd-va; SOKOLOVA, T.F., tekhn. red.

[Gear transmissions; tooth and worm gears] Peredachi zatsepleniem; zubchatye i cherviachnye. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1961. 478 p. (MIRA 14:7)
(Gearing)

ACC NR: AP6036060 SOURCE CODE: UR/0056/66/051/004/1227/1235

AUTHOR: Akhiyezer, I. A.; Borovik, A. Ye.

ORG: Physicotechnical Institute, AN UkrSSR (Fiziko-tekhnicheskiy institut, AN UkrSSR)

TITLE: Nonlinear motions of a plasma with an arbitrary electron velocity distribution

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 51, no. 4, 1966, 1227-1235

TOPIC TAGS: plasma, nonlinear plasma, electron motion, Maxwell distribution, rarefaction wave, compression wave, electron velocity distribution

ABSTRACT: One-dimensional finite-amplitude motions in a nonequilibrium plasma consisting of hot electrons and cold ions are investigated. Stationary waves and also nonstationary multibeam flows of the simplest type (Riemann or simple waves) are considered. It is shown that solitary waves may be of two types, depending on the nature of the electron velocity distribution. The particle density and electrostatic potential increase in solitary compression waves whereas in rarefaction

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ACC NR: AP6036060

waves these quantities decrease. When the electron distributions are such that solitary rarefaction waves are produced, the reflection of electrons from the potential barrier produced by the wave may result in the formation of quasi-shock rarefaction waves (in contrast to quasi-shock compression waves arising in a plasma with a Maxwellian electron distribution). The sign of variation of the quantities characterizing the plasma in a multibeam simple wave is established. It is shown that depending on the nature of the initial electron velocity distribution, either the normal case may be encountered, when discontinuities (or additional ion beams) arise on the compression regions, or the anomalous case, when the discontinuities arise in the rarefaction regions. In conclusion, the authors wish to express their appreciation to R. V. Polovin and K. N. Stepanov for useful discussions. Orig. art. has: 21 formulas and 2 figures. [Authors' abstract] [AM]

SUB CODE: 20/ SUBM DATE: 11May66/ ORIG REF: 003/ OTH REF: 002/

Card 2/2

BOROVICK, M. ; PROTIVA, M.

"Antihistamine substances. XLI. Derivatives of 1-aza-2, 3, 5, 6,-dibenzocycloheptadiene (homarcridan). p. 1344"

P. 1344 (Chemicke Listy, Vol. 51, no. 7, July 1957, Praha, Czechoslovakia)

Monthly Index of East European Accessions (EEAI) LC, Vol. 7, No. 7, July 1958

ACC NR: AP7000784 (N) SOURCE CODE: UR/0089/66/021/005/0339/0345

AUTHOR: Borovik, Ye. S.; Katrich, N. P.; Nikolayev, G. T.

ORG: none (deceased)

TITLE: Interaction of fast H_1^+ ions with the surface of metals in ultrahigh vacuum

SOURCE: Atomnaya energiya, v. 21, no. 5, 1966, 339-345

TOPIC TAGS: ultrahigh vacuum, metal surface impregnation, hydrogen ion, ion bombardment, nickel, stainless steel, tantalum, titanium

ABSTRACT: In view of the absence of data on the sputtering of metals in ultrahigh vacuum, and the accompanying penetration of fast particles into metals, such as occur in magnetic traps used for plasma research, the authors have investigated the interaction of fast hydrogen ions H_1^+ with nickel and stainless steel, which form weak chemical bonds with hydrogen, and with metals such as tantalum and titanium, which form strong chemical bonds. The coefficient of sputtering of stainless steel by 35-kev H_1^+ ions (α) and the penetration coefficient of H_1^+ in stainless steel (η) were determined under conditions of superhigh vacuum by a weighing method, using a system of hydrogen and helium condensation pumps and other equipment described in detail elsewhere (Atomnaya energiya v. 18, 91, 1965). The values obtained for α and η are 9×10^{-3} and 0.5 at intruder hydrogen concentrations greatly exceeding 10^{19} atoms/cm^2. The dependence of η on the density of the intruder hydrogen and on the temperature of the metal was measured by varying the pressure. The results lead to the conclusion

Card 1/2 UDC: 532.6: 533.9

ACC NR: AP7000784

that the maximum coefficient of penetration and the maximum gas absorbing capacity is possessed by metals such as titanium, which forms strong chemical bonds with hydrogen. It is advisable to use these metals for binding fast particles in magnetic traps. At low concentration of the intruded hydrogen, the number of reflected atoms probably does not exceed several per cent for all the metals investigated. At low temperatures, the curves of η for all the investigated metals were practically the same. At normal temperatures, η did not decrease for titanium and tantalum, but decreased for stainless steel by a factor of two and for nickel by a factor of three. At high temperatures and low concentrations of the intruded hydrogen, η decreases rapidly (to 0 - 15%) for all the investigated metals. Orig. art. has: 6 figures, 4 formulas, and 1 table.

SUB CODE: 11, 20/ SUBM DATE: 01May66/ ORIG REF: 005

Card 2/2

ACC NR: AP7003614 SOURCE CODE: UR/0185/66/011/012/1341/1344

AUTHOR: Borovyk, Ye. S.—Borovik, Ye. S.; Dykyy, A. P.—Dikiy, A. P.; Mamaluy, Yu. O.—Mamaluy, Yu. A.

ORG: Khar'kov State University im. O.M. Gor'kiy (Kharkivs'kyy derzhuniversytet)

TITLE: Magnetostriction of ferroxplans

SOURCE: Ukrayins'kyy zhurnal, v. 11, no. 12, 1966, 1341-1344

TOPIC TAGS: magnetostriction, magnetic permeability, ferromagnetic material, cobalt containing alloy, nickel containing alloy

ABSTRACT: The magnetostriction of mixed ferroxplans of the type $Co_yNi_{z-y}W_{Va}$ (where W_{Va}-$BaO{\cdot}6Fe_2O_3$), and of some pure ferroxplans of the W type was measured. The measurements were made on polycrystalline samples with values of y = 0, 0.2, 0.4, 0.7, 1, 1.5, and 2. The ferroxplans investigated were in the form of solid solutions having different signs of the first anisotropy constant K_1. Investigation of the anisotropy energy and the magnetic permeability of such systems of mixed ferroxplans showed that, for given composition, a minimum of anisotropic energy and a maximum permeability exist. The value of the

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ACC NR: AP7003614

anisotropy energy is small because with the given concentration of Co ions in ferroxplan the first anisotropy constant changes its sign, i.e. $K_1 = 0$ for this composition. Measurements of magnetostriction showed that saturation magnetostriction of all investigated ferroxplans has a negative value. Orig. art. has: 3 figures and 1 formula.

SUB CODE: 20/ SUBM DATE: 31Mar66/ ORIG REF: 005/ OTH REF: 004

Card 2/2